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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/579,978 | 05/22/2006 | Kazuhiro Yoshinaga | 2006-0777A | 3733 |
| 513 7590 03/17/2008 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021 | | | EXAMINER HENRY, MICHAEL C | |
| | | | ART UNIT 1623 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/579,978

Applicant(s)

YOSHINAGA ET AL.

Examiner

MICHAEL C. HENRY

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 22 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The following office action is a responsive to the Amendment filed, 10/22/07.

The amendment filed 10/22/07 affects the application, 10/579,978 as follows:

1. Claim 1 has been amended.
2. The responsive to applicants' arguments is contained herein below.

Claims 1-7 are pending in the application

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 as amended now are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmad ("Studies on the Degradation of Some Pentoses and of 1,5-Anhydro-D-Fructose, The Product of the Starch-Degrading Enzyme α -1,4-Glucan Lyase" Phd Thesis, The Swedish University of Agricultural Sciences, Sweden, pages 1-34, 1995) in view of Elsser et al. (WO 02/26060 A1).

In claim 1, applicant claims "A method for producing ascopyrone P, which comprises heating an aqueous solution of 1,5-D-anhydrofructose at a pH of 10 or less and a temperature of 100°C or higher." Claims 2-5 are drawn to said method wherein the heating is conducted at specific temperatures, for specific time and specific pH. Claims 6-7 are drawn to said method

wherein the heating is conducted in the presence of an antioxidant and wherein the antioxidants are selected acids or their salts.

Ahmad disclose that a method for producing ascopyrone P, which comprises treating an aqueous solution of 1,5-D-anhydrofructose with aqueous alkaline solution such as NaOH at temperature of 25°C (see paper V, page 2, last paragraph to page 3, line 2). Furthermore, Ahmad discloses that the solution can be neutralized with HCl acid (see paper V, page 2, last paragraph to page 3, line 2).

The difference between applicant's claimed method and the method of Ahmad is the temperature and the fact that Ahmad do not disclose the pH of the solution. It should also be noted that the pH of Ahmad's solution may well be the same as applicant's (i.e., at a pH of less than 10) especially since Ahmad does not disclose the final or total volume of the solution used in said preparation. Furthermore, the suggestion by Ahmad that alkaline solution can be used implies that solutions with alkaline pH including applicant's pH (e.g., pH of 7.5-10) can be used.

Elsser et al. disclose a method for producing ascopyrone P, which comprises heating a solution of 1,5-D-anhydrofructose with non-aqueous acid at an elevated temperature, for example of 70°C (see page 9, line 31 to page 10, line 4). This suggests that elevated temperatures may be preferred and can be used to heat solutions of 1,5-D-anhydrofructose in the preparation of ascopyrone P. Furthermore, a skilled artisan would be motivated to modify the physical parameters used in Ahmad's method such as temperature, pH and time in order to optimize the process conditions and physical variables such as amounts, % yield and/or purity of product produced (i.e., ascopyrone P). It should be noted that merely modifying the process

conditions such as temperature and concentration is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U.S.P.Q. 233 (C.C.P.A. 1955).

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made, in view of Ahmad and Elsser et al., to have used the method of Ahmad to produce ascopyrone P and to alter the physical parameters used in Ahmad's method such as temperature and pH in order to use it as an antioxidant or antibacterial, based on factors such as availability, cost, convenience and/or need.

One having ordinary skill in the art would have been motivated in view of Ahmad and Elsser et al. to use the method of Ahmad to produce ascopyrone P and to alter the physical parameters used in Ahmad's method such as temperature and pH in order to use it as an antioxidant or antibacterial, based on factors such as availability, cost, convenience and/or need. It should be noted that it is obvious to use any acid such as or including applicant's claimed antioxidant, ascorbic acid, since Ahmad suggests that acid can be used. Also, it is obvious to add an antioxidant such as ascorbic acid which has the same utility as the ascopyrone P product.

Response to Arguments

Applicant's arguments with respect to claims 1-7 have been considered but are not found convincing.

The applicant argues that the pH of the solution is not specified in the method (1) and a reaction is carried out in a non-aqueous solution in the method (1) whereas a reaction is carried out in an aqueous solution in the method in claim 1 of the present application. That is, they basically differ from each other in reaction system. However this rejection is moot in view of the above new ground(s) of rejection (see above rejection).

The applicant argues that since the method (2) merely discloses a reaction at 25°C as described above, it is impossible to reasonably predict from method (2) that APP can be manufactured at a temperature higher than 100°C, especially at a high yield. However, this rejection is moot in view of the above new ground(s) of rejection (see above rejection).

The applicant argues that the mere fact that ascorbic acid (a species) is an acid (a genus) does not establish a presumption that the use of ascorbic acid is obvious. However, it is obvious to add an antioxidant such as ascorbic acid which has the same utility as the ascopyrone P product. Also, it should be noted that it is obvious to use any acid such as or including applicant's claimed antioxidant, ascorbic acid, since Ahmad suggests that acid can be used.

The Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 571-272-0652. The examiner can normally be reached on 8.30am-5pm; Mon-Fri. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael C. Henry

/Shaojia Anna Jiang/ Ph.D.
Supervisory Patent Examiner,
Art Unit 1623
March 3, 2008.